

REMARKS/ARGUMENTS

Applicants appreciate the consideration shown by the Office, as evidenced by the Advisory Action mailed on September 16, 2008, and Office Action mailed on August 5, 2008. After consideration of the Advisory Action and Office Action, Claims 1, 10, 11, 20 and 21 have been amended, and Claims 7, 8 and 15 have been canceled. Claims 1-4, 9-13 and 16-21 are under consideration in the present application. Applicants respectfully request reconsideration of the application by the Examiner in light of the above amendments and the following remarks.

Rejections under 35 U.S.C. § 103(a)

Applicants respectfully traverse the rejection of Claims 1-4, 9-13, 16-17 and 19-21 under 35 U.S.C. §103(a) as being unpatentable to U.S. Patent No. 6,623,692 to Jackson et al. (hereinafter "Jackson"). The Examiner cites Jackson as disclosing an alloy having a composition relative to that of the present invention. The Examiner states that the disclosed amounts of platinum, palladium, tungsten, rhenium and ruthenium for a rhodium-based alloy Jackson, overlap the alloy composition of the present invention.

Amended independent Claim 1 of the present application recites an alloy consisting of at least about 50 atomic percent rhodium; up to about 49 atomic percent of a first material, said first material consisting of at least one of palladium, platinum, iridium, and combinations thereof; from about 1 to about 15 atomic percent of a second material, said second material consisting of at least one of tungsten, rhenium, and combinations thereof; up to about 10 atomic percent of a third material, said third material consisting of at least one of ruthenium, chromium, and combinations thereof; and a fourth material, said fourth material consisting of at least one of zirconium, yttrium, hafnium, tantalum, aluminum, titanium, scandium, elements of the lanthanide series, elements of the actinide series, and combinations thereof, wherein the fourth material is present in an amount from about 0.1 to about 2 atomic percent; wherein said alloy has an A1-structured phase at temperatures greater than about 1000 °C, in an amount of at least about 90% by volume.

Jackson fails to disclose or suggest an alloy consisting of the materials set forth in independent Claims 1, 10, 11, 20 and 21 of the present application, which include a fourth material consisting of at least one of zirconium, yttrium, hafnium, tantalum, aluminum, titanium, scandium, elements of the lanthanide series, elements of the actinide series, and combinations thereof, wherein the fourth material is present in an amount from about 0.1 to about 2 atomic percent. In Jackson, the precipitation strengthening metals are used to promote the formation of an L1₂ structured phase in the alloy, and need to be present in an amount between 3% and 9% in the alloy compositions (see column 4, lines 24-28). As the proportion of precipitation strengthening metals in the alloy increases, the volume fraction of the L1₂ structured phase increases (see column 4, lines 31-34). Accordingly, there would have been no motivation to modify the concentration of the precipitation strengthening agents to an amount between 0.1 and 2 atomic percent in the Jackson alloy composition.

Accordingly, Applicants submit that independent Claim 1 and its dependent Claims 2-4 and 9, independent Claim 10, independent Claim 11 and its dependent Claims 12, 13, 16-17, and 19, independent Claim 20, and independent Claim 21 are patentably distinct and allowable over Jackson.

Applicants respectfully traverse the rejection of Claim 18 under 35 U.S.C. §103(a) as being unpatentable over Jackson, and further in view of U.S. Patent No. 4,305,998 to Manty et al. (hereinafter "Manty"). This combination of references fail to teach, suggest, or disclose at least one element of the alloy composition as claimed in the present application.

The Examiner cites Manty as teaching the application of a protective coating to an aircraft engine component wherein the coating is made of chromium, molybdenum, niobium, tantalum, vanadium, zirconium, platinum, or rhodium or a combination thereof or alloy of any of these metals. However, Manty fails to supply the deficiencies of Jackson as previously set forth, and this combination of references fails to teach, suggest, or disclose each and every element recited in the rejected claim. Accordingly, Applicants respectfully submit that independent Claim 11, and its dependent Claim 18 are allowable over the applied combination of references.

Applicants respectfully traverse the rejection of Claim 18 under 35 U.S.C. §103(a) as being unpatentable over Jackson, and further in view of U.S. Patent No. 4,399,199 to McGill et al. (hereinafter "McGill").

The Examiner cites McGill as disclosing the formation of a thermal barrier layer consisting essentially of platinum group metals on turbine blades in order to provide a barrier to combustion gas penetration to the underlying substrate and increase the efficiency of the engine by forming a very smooth surface. It is respectfully submitted that McGill fails to supply the deficiencies of Jackson with respect to independent Claim 11 of the present application, as set forth above. Accordingly, Applicants respectfully submit that Claim 18 is allowable over the applied combination of references.

Double Patenting

The Examiner has rejected Claims 1-4, 10-13, 16-17 and 19-21 on the ground of nonstatutory obviousness-type double patenting as being unpatentable over Claims 1 and 17-29 of U.S. Patent No. 6,623,692 to Jackson et al. Applicants believe the claims of the present application are patentably distinct from Claims 14 and 17-29 of the '692 patent. Specifically, Claims 1 and 17-29 of the '692 patent fail to describe an alloy which consists of the materials set forth in independent Claims 1, 10, 11, 20 and 21 of the present application, which include a fourth material consisting of at least one of zirconium, yttrium, hafnium, tantalum, aluminum, titanium, scandium, elements of the lanthanide series, elements of the actinide series, and combinations thereof, wherein the fourth material is present in an amount from about 0.1 to about 2 atomic percent. Accordingly, Applicants respectfully request removal of the double patenting rejection.

Appl. No.10/747,712
Response Dated September 30, 2008
Reply to Office Action of August 5, 2008

Conclusion

In light of the remarks presented herein, Applicants believe that this serves as a complete response to the subject Office Action. If, however, any issues remain unresolved, the Examiner is invited to telephone the undersigned representative at the telephone number provided below.

Respectfully submitted,

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